

Tornadoes

Defined as a violently rotating column of air extending from a thunderstorm to the ground.



- Occur in many parts of the world
- Found most frequently in the United States east of the Rocky Mountains
 - Most frequent during the spring and summer months.
 - An average of 800 tornadoes are reported nationwide each year
 - 80 deaths and over 1,500 injuries average per year.
 - Capable of tremendous destruction with wind speeds of 250 mph or more

Tornado Variations



- Some tornadoes may form during the early stages of rapidly developing thunderstorms.
- Occasionally, two or more tornadoes may occur at the same



- Tornadoes may appear nearly transparent until dust and debris are picked

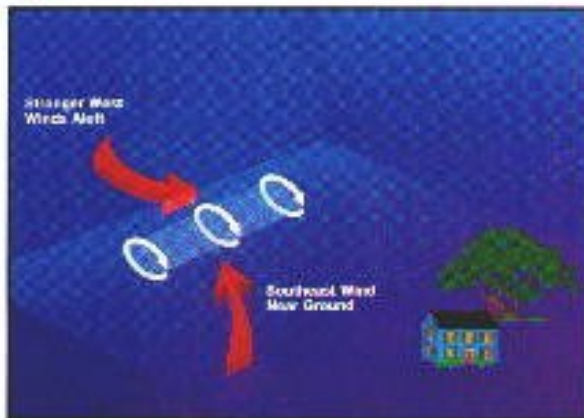


- Waterspouts are weak tornadoes that form over warm water.

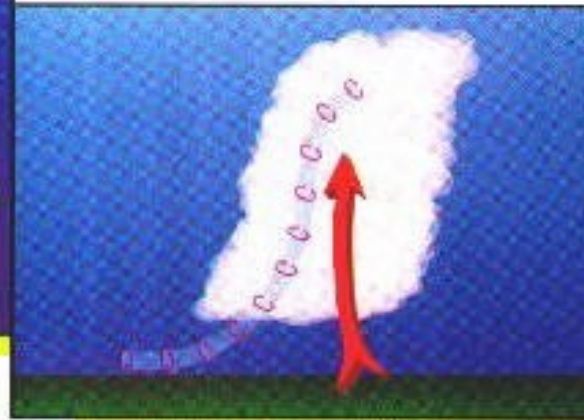


How Do Tornadoes Form?

Before thunderstorms develop, a change in wind direction and an increase in wind speed with increasing height creates an invisible, horizontal spinning effect in the lower atmosphere.



Rising air within the thunderstorm updraft tilts the rotating air from horizontal to vertical.



An area of rotation, 2-6 miles wide, now extends through much of the storm. Most strong and violent tornadoes form within this area of strong rotation.



Tornado Clues



Look out for:

- Dark, often greenish sky
- Wall cloud
- Large hail
- Loud roar; similar to a freight train



A lower cloud base in the center of the photograph identifies an area of rotation known as a rotating wall cloud. This area is often nearly rain-free. Note rain



Moments later a strong tornado develops in this area. Softball-size hail and damaging "straight-line" winds can occur with this

How Tornadoes Hide

- **Tornadoes hide in many ways -- under cover of darkness, heavy rain, landscape.**
- **They usually develop in areas in which a severe thunderstorm watch or warning is in effect. Remain alert to signs of an approaching tornado and seek shelter if threatening conditions exist**



A burst of hail
can mean
a tornado
is near.

Hills or trees.

Haze or darkness.

Tornado Myths



MYTH: Areas near rivers, lakes, and mountains are safe from tornadoes.

FACT: No place is safe from tornadoes. In the late 1980's, a tornado swept through Yellowstone National Park leaving a path of destruction up and down a 10,000 ft. mountain.

MYTH: The low pressure with a tornado causes buildings to "explode" as the tornado passes overhead.

FACT: Violent winds and debris slamming into buildings cause most structural

Tornado Safety

- In a home or building, move to a pre-designated shelter, such as a basement.
- Stay away from windows
- If an underground shelter is not available, move to an interior room or hallway on the lowest floor and



- Mobile homes, even if tied down, offer little protection from tornadoes and should be abandoned.



Interior bathroom was all that was left standing of the

Tornado Safety



Damage in tornado stricken Northeastern Georgia.
Photo by Andrea Booher/FEMA

- Get out of automobiles.
- Do not try to outrun a tornado in your car; instead, leave it immediately.

Tornado Safety at Work



- **Go to an inside hallway at the lowest level (central 1st floor hallway).**
 - **Stay inside**
 - **1st floor aisle side cubicles under work surface**
 - **Rooms (restrooms, etc. adjoining 1st floor aisle)**
 - **Avoid places with wide-span roofs areas**
- **Move away from exterior walls and windows**
- **Get under a piece of sturdy furniture such as a cubicle work surface or heavy table or desk and hold on to it. (Several of the people that survived the Oklahoma City tornadoes lived because they**



- In the event of a severe weather occurrence aboard Fort Sill, all Marine Detachment personnel should be prepared to take immediate action to ensure individual safety as well as the safety of others. The information provided is to be posted and briefed in periodic safety awareness classes given by the Detachment Safety Officer, OICs, NCOICs, and section safety representatives.

GENERAL

- a. Current forecasts accurately track severe weather and provide approximately 30 minutes warning of thunderstorms that may contain tornadoes. Local television and radio stations are the best source for this information.
- b. A tornado watch is when weather conditions indicate the formation of tornadoes, for example during a severe thunderstorm. A tornado watch may stay in effect for several hours and cover a large area.
- c. A tornado warning indicates a tornado has been sighted or is shown on weather radar. A warning may give the location and probable path of the tornado.
- d. Tornado warning sirens on post sound when a tornado is visually spotted or the National or Air Force Weather agencies or local TV/radio weather reports issue a tornado warning or extreme high wind warning for Fort Sill/Lawton. These warnings may come only in minutes before a tornado actually strikes. A steady 1 minute 20 second siren is the "Take Cover" signal. The "All Clear" signal is a 1 minute 20 second high-low warble siren.
- e. You may be anywhere when a tornado comes. Therefore, each person must prepare and rehearse the best method of protection based on their location.

(1) In a building: Go to an interior room (hall, closet or bath) on the lowest floor, ideally a basement. Stay away from windows and outside walls. Take shelter under heavy furniture or in a bathtub if in quarters. Cover yourself with padding, mattress, pillows and blankets. Protect your head, face and eyes from flying or falling debris.

(2) Outdoors: Lie down in a depression, ditch or culvert. Cover your head with your arms.

(3) In a vehicle or mobile home: In a vehicle or mobile home is probably the worst place to be located during a tornado. Such vehicles are easily tossed about by tornadoes, and fatalities often result to occupants. Instead, leave the vehicle or mobile home. Seek shelter in a depression or in the nearest sturdy building.

(4) In buildings with large, free span roof: When in such a building as the Post Exchange, Commissary, or gymnasiums go to the nearest sturdy building or if time does not permit, seek shelter in interior rooms.

EVACUATION TO SHELTERS.

a. Each Marine must be prepared to take decisive action in the event of severe weather occurrences aboard Fort Sill. A quick reaction plan to obtain desired shelter and optimum protection within a 5-minute timeframe will be established by all sections.

Tornado Warning!

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